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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,029

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Hai Jie Wu

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MAGINOT, MOOR & BECK
111 MONUMENT CIRCLE, SUITE 3000
BANK ONE CENTER/TOWER
INDIANAPOLIS, IN 46204

EXAMINER

JOHNSON, RYAN

ART UNIT

PAPER NUMBER

2892

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/537,029

Applicant(s)

WU ET AL.

Examiner

Ryan J. Johnson

Art Unit

2892

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-14 and 17-30 is/are rejected.
- 7) ☒ Claim(s) 15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/24/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because Figure 9 contains unclear structure. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 11 is objected to because of the following informalities: lack of antecedent basis for the term "the resistive and reactive elements". For the purpose of applying art, "at least one active element" is interpreted as "at least one reactive element". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 21-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 21 contains the phrase "a resistive/capacitive series circuit". It is unclear if this means "a resistive or capacitive", "a resistive and capacitive", or both. For the purposes of applying art, this terminology will be interpreted as "a resistive and capacitive". Claims 22-30 are rejected for being dependant on claim 21.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 11,13,14,17,18,21,23,24,27 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikuchi (U.S. Patent No. 5,420,547).

7. Claim 11: Kikuchi teaches an arrangement for use in a current controlled oscillator (Kikuchi teaches a voltage-controlled oscillator that is inherently controlled by current, Fig.9) comprising:

- a. a first section providing a first differential output (output from STG0 to R11);

- b. a second section providing a second differential output (output from STG0 to R12); and
 - c. a loading structure (T11, T12, C11, C12, T, R) comprised of at least resistive element (T12,T11,T) and at least one reactive element (C11,C12) electrically connecting the first differential output with the second differential output (N1 is connected to N5 from T11 to T12 and from T11 to T to ground to C12), the resistive and reactive elements configured to substantially extend the linear operating frequency range of the current controlled oscillator (col.7,51-53).
8. Claim 21: Kikuchi teaches an arrangement for use in a current controlled oscillator (Kikuchi teaches a voltage-controlled oscillator that is inherently controlled by current, Fig.9) comprising:
- d. a first transistor circuit providing a first differential output (output from STG0 to R11);
 - e. a second transistor circuit section providing a second differential output (output from STG0 to R12); and
 - f. a loading circuit including at least a first capacitive element (C11,C12) coupled between the first differential output and the second differential output (N1 is connected to N5 from T11 to T to ground to C12) and a resistive and capacitive series circuit coupled between the first differential output with the second differential output (N1 is connected to N5 from C11 to ground to T to T12).

9. Claims 13,23: Kikuchi teaches that the resistive and capacitive series circuit includes at least one transistor (T11,T12,T) and at least one capacitor (C11,C12) coupled in series (T is coupled in series to C11 and C12 through ground).
10. Claims 14,24: Kikuchi teaches that each of the at least one transistors of the loading structure has a gate operably coupled to ground (Although various voltages can be applied to the gate, the gate must inherently be at least indirectly coupled to ground in order to achieve a proper voltage).
11. Claim 17: Kikuchi teaches that the loading structure includes a resistive device in series with a capacitive device (T is in series with C12 through ground), the resistive device and the capacitive device both coupled in parallel with a second capacitive device (C11 is in parallel with T through ground and C12 is in parallel with T through N5, T12, and T11).
12. Claim 27: Kikuchi teaches that the resistive/capacitive series circuit includes two transistors coupled by a capacitor (T is coupled to ground, to C12, to N5, to T12).
13. Claims 18,28: Kikuchi teaches the resistive/capacitive series circuit include at least one transistor (T12,T11,T) and one capacitive element (C11,C12).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 12 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi in view of Mijuskovic (U.S. Patent No. 5,206,609). Kikuchi teaches the limitations of claims 11 and 21, but does not explicitly disclose that the first and second section are comprised of at least parallel connection and at least one series connection of transistors. Mijuskovic discloses (Fig.2) using parallel (30,32) and series (30,36 and 32,36) connection transistors in order to provide a suitable delay stage for a current controlled oscillator (col.2,6-42). The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used at least a parallel connection and at least a series connection of transistors in order to have provided a suitable delay stage for a current controlled oscillator.

16. Claims 19,20,29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi in view of Hull et al. (U.S. Patent No. 4,519,086).

17. Claims 19,29: Kikuchi teaches the limitations of claims 11,18,21 and 28, but does not explicitly disclose that each of the at least one transistors comprises a field effect transistor. Hull discloses using MOSFET technology in a PLL system including a voltage-controlled oscillator (col.2,21-36) in order to reduce cost and size (col.2,9-17). Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to have used a field effect transistor in order to have reduced cost and size of the circuit.

18. Claims 20,30: Hull discloses using pMOS transistors (col.6,66-col.7,7).

Allowable Subject Matter

19. Claims 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: Prior art does not teach coupling the base of a control transistor to a power supply rejection ration compensation circuit.

20. Claims 25 and 26 would be allowable if the 112 2nd rejection is resolved as well rewritten in independent form including all of the limitations of the base claim and any intervening claims for reasons identical to Claims 15 and 16.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yang et al. (U.S. Patent No. 6,633,202) discloses a ring oscillator circuit with differential outputs coupled by transistors and capacitors (Fig.3).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan J. Johnson whose telephone number is 571-270-1264. The examiner can normally be reached on Monday - Thursday, 9:00 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



RJJ



MICHAEL B. CLEVELAND
SUPERVISORY PATENT EXAMINER